

## REMARKS

Applicant respectfully requests re-consideration of the application in view of the amendments and the arguments presented below.

### Summary of Office Action

Claims 1-20 are pending.

Claims 1-6, 11, and 12 were rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,944,213 B2 of Lee ("Lee").

Claims 1, 4, and 10-12 were rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 6,295,343 B1 of Hjartarson, et al. ("Hjartarson") in view of U.S. Patent No. 6,735,302 B1 of Caine, et al. ("Caine").

Claims 13-16 were rejected as being unpatentable under 35 U.S.C. § 103 over Hjartarson in view of Caine and further in view of U.S. Patent No. 5,452,345 of Zhou ("Zhou").

Claims 13-18 were rejected as being unpatentable under 35 U.S.C. § 103 over U.S. Patent No. 5,930,340 of Bell ("Bell") in view of Zhou and U.S. Patent No. 5,329,588 of Wilcox ("Wilcox").

Claim 7 was rejected as being unpatentable under 35 U.S.C. § 103 over Hjartarson and Caine in view of Zhou.

Claims 8-9 and 19-20 were rejected as being unpatentable under 35 U.S.C. § 103 over Hjartarson, Zhou and U.S. Patent No. 5,835,533 of Booth, et al. ("Booth").

### Summary of Amendments

Claims 1 and 5 were amended. Claim 5 was amended to ensure proper antecedent basis. Support for the amendment to claim 1 is found in the specification including the figures and claims as originally filed. Support for the amendment to claim 1 may be found, for example, at pg 12, line 28 through page 15, line 18 and Figure 5. Applicant submits that the claim amendments do not add new matter.

## Response to Examiner Comments

The Examiner has repeatedly disregarded the distinctions between “upstream” or “downstream” (as claimed) when arguing the prior art. Although applicant agrees that Lee discloses integrating xDSL circuitry and voiceband circuitry on a single die, Lee is drawn to circuitry *receiving downstream signals* (e.g., from the central office) and *transmitting upstream signals* (e.g., towards the central office). Lee is receiving downstream voice and data signals from the subscriber line. Lee *combines upstream* voice and data signals for communication on the subscriber line. Lee clearly *separates* rather than combining the downstream voice and data signals into signals corresponding to downstream voice signals and downstream data signals. (see, e.g., Lee, Abstract, Fig. 2). These arguments will be provided in greater detail and support yet again with respect to the 35 U.S.C. § 102 rejections below.

Applicant maintains that Lee does not teach or suggest an integrated circuit driver that *combines a downstream voice signal and downstream data signal into a common downstream signal for/from the subscriber line*. The Examiner continues to disregard the difference between “upstream” and “downstream”, and “separating” vs. “combining”. The Examiner’s statements are not supported by the clear text of the reference.

## Response to 35 U.S.C. § 102 rejections

Claims 1-6, and 10-12 were rejected as being anticipated by Lee.

With respect to Lee, the Examiner has stated:

Lee teaches a subscriber line interface circuit apparatus shown in Fig. 2, comprising:

a driver (380) combining a downstream voice signal in a voiceband range and a downstream data signal in a non-voiceband range into a common downstream signal for a subscriber line (290); and receiver circuitry (240) coupled to provide an upstream data signal and an upstream voice signal from an upstream signal carried by the subscriber line, wherein the driver and receiver circuitry reside on a same integrated circuit die.

(03/07/2006 Office Action, pgs. 3-4)

Applicant traverses the Examiner's characterization of Lee. Applicant re-iterates that Lee's element 380 is a driver for communicating upstream data signals to the subscriber line. Moreover, any "combining" function with respect to the upstream signals is clearly being performed external to the integrated circuit. The only activity with respect to downstream signals is separating them into voice and data communications. There is NO support for the Examiner's continuing representations that driver 380 is driving downstream signals.

Lee's receiver circuitry 240 is coupled to provide *a downstream data signal* from the subscriber line. Indeed there would be no need to interact with the subscriber line to obtain *upstream* voice and *data* signals due to their availability from driver 380 and codec 212 rendering the Examiner's line of reasoning rather absurd.

Applicant submits that Lee *does not teach or suggest an integrated circuit driver that combines a downstream voice signal and downstream data signal into a common downstream signal for the subscriber line.*

To the contrary, referring to Figure 2, Lee clearly has distinct couplings from the integrated circuit 218 to the subscriber line 290 for each of the voice communications and the data communications. Furthermore, there is no common driver for the voice and the data signals.

Codec 212 is associated with the upstream or downstream *voice* signals. Transmit block 230 is separately responsible for upstream *data* signals. (Lee, col. 4, lines 20-35). *There is no integrated circuit driver that combines a downstream voice signal and a downstream data signal into a common downstream signal for the subscriber line 290.* Even if one assumes *arguendo* that directionality (i.e., upstream or downstream) is irrelevant, applicant notes that Lee's *integrated circuit 218 does not include a driver that combines voice and data signals into a common signal for the subscriber line 290.*

Lee's receiver 240 is coupled to extract the downstream data signal from a downstream signal carried by the subscriber line. Lee does not teach or suggest a receiver that is coupled to provide both an upstream data signal and an

upstream voice signal from an upstream signal carried by the subscriber line. As before, even if one assumes *arguendo* that directionality (i.e., upstream or downstream) is irrelevant, Lee's integrated circuit 218 does not include a receiver that extracts both the voice signals and data signals from a common signal carried by the subscriber line.

Applicant thus submits that Lee does not teach or suggest either (1) a driver combining a downstream voice signal and a downstream data signal into a common downstream signal for a subscriber line, or (2) receiver circuitry coupled to separately provide an upstream data signal and an upstream voice signal from an upstream signal carried by the subscriber line, wherein the driver and receiver circuitry reside on the same integrated circuit die.

In contrast, claim 1 includes the language:

1. A subscriber line interface circuit apparatus, comprising:  
*a driver combining a downstream voice signal in a voiceband range and a downstream data signal in a non-voiceband range into a common downstream signal for a subscriber line; and*  
*receiver circuitry coupled to separately provide an upstream data signal and an upstream voice signal from an upstream signal carried by the subscriber line, wherein the driver and receiver circuitry reside on a same integrated circuit die.*

(Claim 1)(*emphasis added*)

Thus claim 1 is not anticipated by Lee. Given that claims 2-12 depend from claim 1, applicant submits claims 2-12 are likewise not anticipated by Lee.

Applicant submits that the 35 U.S.C. § 102 rejections have been overcome.

### **Response to 35 U.S.C. § 103 rejections**

Claims 1, 4, and 10-12 are rejected as being unpatentable over Hjartarson in view of Caine.

With respect to Hjartarson, the Examiner has stated:

Hjartarson et al teach a subscriber line interface circuit apparatus shown in Fig. 4, comprising:

*a driver (416) for combining a downstream voice signal in a voiceband range and a downstream data signal in a non-voiceband range*

into a common downstream signal for a subscriber line (404) [Figs. 5-6; col. 5, line 45 to col. 6, line 16]; and

*receiver circuitry comprised of a feed resistor (418) coupled to provide an upstream data signal and an upstream voice signal from an upstream signal carried by the subscriber line [Figs 6-9; col. 6, lines 17-24];*

(03/07/2006 Office Action, pgs 5-6)(*emphasis added*)

Applicant traverses the Examiner's characterization of Hjartarson. The purpose of Hjartarson's feed resistor 418 is to sense the current in the line for the purpose of synthesizing an impedance. (Hjartarson, col. 5, lines 31-44; col. 6, lines 17-24). Hjartarson's feed resistor is not capable of separating the upstream data signal and the upstream voice signal from the upstream signal carried by the subscriber line as alleged by the Examiner. Applicant has amended claim 1 to emphasize that the claimed receiver circuitry is separately providing each of the upstream voice signal and the upstream data signal from the upstream signal carried by the subscriber line. Any separation of upstream and downstream and voice and data occurs within Hjartarson's xDSL modem 408 and POTS circuit 406.

The Examiner has introduced Caine merely for the teaching of implementing some SLIC functions on an integrated circuit die, however, Caine is notably missing any discussion of data communications, particularly *downstream data* signals. Indeed, Caine is drawn exclusively to handling voiceband signals (i.e., traditional SLIC). The absence of these elements is hardly support for the Examiner's obviousness argument regarding their inclusion. The combination of references merely indicates that the voiceband circuitry might be integrated, but does not otherwise teach or suggest integrated voiceband and data drivers and receivers onto the same integrated circuit die.

Applicant thus submits the cited references do not teach or suggest: a subscriber line interface circuit apparatus comprising a driver combining a downstream voice signal in a voiceband range and a downstream data signal in a non-voiceband range into a common downstream signal for a subscriber line, and *receiver circuitry coupled to separately provide an upstream data signal and an upstream voice signal from an upstream signal carried by the subscriber line, wherein the driver and receiver circuitry reside on a same integrated circuit die.*

In contrast, claim 1 includes the language:

1. A subscriber line interface circuit apparatus, comprising:  
*a driver combining a downstream voice signal in a voiceband range and a downstream data signal in a non-voiceband range into a common downstream signal for a subscriber line; and*  
*receiver circuitry coupled to separately provide an upstream data signal and an upstream voice signal from an upstream signal carried by the subscriber line, wherein the driver and receiver circuitry reside on a same integrated circuit die.*

(Claim 1, as amended)(*emphasis added*)

Claims 7-9 and 13-20 were rejected as being unpatentable under 35 U.S.C. § 103 over various combinations of Hjartarson, Caine, Zhou, Bell, Wilcox, and Booth.

Applicant respectfully submits that none of Zhou, Bell, Wilcox, or Booth, alone or combined, makes up for the deficiencies of Hjartarson or Caine as previously argued with respect to claim 1. Applicant therefore submits that the same arguments presented with respect to claim 1 may similarly be made with respect to claim 13. In particular, *none of the cited references, alone or combined, teaches or suggests a) driver circuitry for combining and driving a downstream voice signal, a metering signal, and a downstream data signal onto the subscriber line; and b) receiver circuitry for receiving and separating an upstream signal from the subscriber line into an upstream voice signal and an upstream data signal, wherein the driver and receiver circuitry reside on a common integrated circuit die.*

In contrast, claim 13 includes the language:

13. A subscriber line interface circuit apparatus, comprising:  
*driver circuitry for combining and driving a downstream voice signal, a metering signal and a downstream data signal onto a subscriber line; and*  
*receiver circuitry for receiving and separating an upstream signal from the subscriber line into an upstream voice signal and an upstream data signal, wherein the driver and receiver circuitry reside on a common integrated circuit die.*

(Claim 13)(*emphasis added*)

Thus claim 13 is patentable under 35 U.S.C. § 103 in view of the cited references.

Given that claims 2-12 depend from claim 1 and claims 14-20 depend from claim 13, applicant submits that claims 2-12 and 14-20 are likewise patentable over the cited references.

Applicant respectfully submits that the 35 U.S.C. § 103 rejections have been overcome.

### **Conclusion**

In view of the arguments presented above, applicant respectfully submits the applicable rejections and objections have been overcome. Accordingly, claims 1-20 should be found to be in condition for allowance.

If there are any issues that can be resolved by telephone conference, the Examiner is respectfully requested to contact the undersigned at (512) 858-9910.

Respectfully submitted,

Date

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William D. Davis

William D. Davis  
Reg No. 38,428